

WHAT IS CLAIMED:

1. An isolated DNA molecule encoding a hypersensitive response eliciting protein or polypeptide, wherein the isolated DNA molecule is selected from the group consisting of (a) a DNA molecule comprising a nucleotide sequence of SEQ. ID. Nos. 1 or 3, (b) a DNA molecule encoding a protein comprising an amino acid of SEQ. ID. Nos. 2 or 4, (c) a DNA molecule which hybridizes to a DNA molecule comprising a nucleotide sequence of SEQ. ID. Nos. 1 or 3, under stringent conditions, and (d) a DNA molecule complementary to DNA molecules (a), (b), and (c).
2. An isolated DNA molecule according to claim 1, wherein said DNA molecule is a DNA molecule comprising a nucleotide sequence of SEQ. ID. Nos. 1 or 3.
3. An isolated DNA molecule according to claim 1, wherein said DNA molecule is a DNA molecule encoding protein comprising an amino acid of SEQ. ID. Nos. 2 or 4.
4. An isolated DNA molecule according to claim 1, wherein said DNA molecule is a DNA molecule which hybridizes to a DNA molecule comprising a nucleotide sequence of SEQ. ID. Nos. 1 or 3, under stringent conditions.
5. An isolated DNA molecule according to claim 1, wherein said DNA molecule is a DNA molecule complementary to DNA molecules (a), (b), and (c).
6. An expression vector transformed with the DNA molecule of claim 1.
7. An expression vector according to claim 6, wherein the DNA molecule is in proper sense orientation and correct reading frame.
8. A host cell transformed with the DNA molecule of claim 1.

9. A host cell according to claim 8, wherein the host cell is selected from the group consisting of a plant cell or a bacterial cell.

10. A host cell according to claim 8, wherein the DNA molecule is 5 transformed with an expression vector.

11. A transgenic plant transformed with the DNA molecule of claim 1.

10 12. A transgenic plant according to claim 11, wherein the plant is selected from the group consisting of alfalfa, rice, wheat, barley, rye, cotton, sunflower, peanut, corn, potato, sweet potato, bean, pea, chicory, lettuce, endive, cabbage, brussel sprout, beet, parsnip, turnip, cauliflower, broccoli, turnip, radish, 15 spinach, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, melon, citrus, strawberry, grape, raspberry, pineapple, soybean, tobacco, tomato, sorghum, and sugarcane.

13. A transgenic plant according to claim 11, wherein the plant is selected from the group consisting of *Arabidopsis thaliana*, *Saintpaulia*, petunia, 20 pelargonium, poinsettia, chrysanthemum, carnation, and zinnia.

14. A transgenic plant seed transformed with the DNA molecule of claim 1.

25 15. A transgenic plant seed according to claim 14, wherein the plant seed is selected from the group consisting of alfalfa, rice, wheat, barley, rye, cotton, sunflower, peanut, corn, potato, sweet potato, bean, pea, chicory, lettuce, endive, cabbage, brussel sprout, beet, parsnip, turnip, cauliflower, broccoli, turnip, radish, 30 spinach, onion, garlic, eggplant, pepper, celery, carrot, squash, pumpkin, zucchini, cucumber, apple, pear, melon, citrus, strawberry, grape, raspberry, pineapple, soybean, tobacco, tomato, sorghum, and sugarcane.

16. A transgenic plant seed according to claim 14, wherein the plant seed is selected from the group consisting of *Arabidopsis thaliana*, *Saintpaulia*, 35 petunia, pelargonium, poinsettia, chrysanthemum, carnation, and zinnia.

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17. An isolated hypersensitive response eliciting protein or polypeptide selected from the group consisting of a protein or polypeptide having an amino acid sequence comprising SEQ. ID. Nos. 2 or 4, and an amino acid sequence encoded by a nucleic acid which hybridizes to a DNA molecule comprising a nucleotide sequence of SEQ. ID. Nos. 1 or 3.

18. 19. 20. 21. 22.

18. An isolated protein or polypeptide according to claim 17, wherein the protein or polypeptide has an amino acid sequence comprising SEQ. ID. Nos. 2 or 4.

19. An isolated protein or polypeptide according to claim 17, wherein the protein or polypeptide is encoded by a nucleic acid which hybridizes to a DNA molecule comprising a nucleotide sequence of SEQ. ID. Nos. 1 or 3.

20. A method of imparting disease resistance to plants comprising: applying a protein or polypeptide according claim 17 in a non-infectious form to a plant or plant seed under conditions effective to impart disease resistance.

21. A method according to claim 20, wherein plants are treated during said applying.

22. A method according to claim 20, wherein plant seeds are treated during said applying, said method further comprising: planting the seeds treated with the hypersensitive response elicitor in natural or artificial soil and propagating plants from the seeds planted in the soil.

23. A method of enhancing plant growth comprising: applying a protein or polypeptide according claim 17 in a non-infectious form to a plant or plant seed under conditions effective to enhance plant growth.

24. A method according to claim 23, wherein plants are treated during said applying.

25. A method according to claim 23, wherein plant seeds are treated during said applying, said method further comprising:

planting the seeds treated with the hypersensitive response elicitor in natural or artificial soil and

propagating plants from the seeds planted in the soil.

10 26. A method of insect control for plants comprising:

applying a protein or polypeptide according claim 17 in a non-infectious form to a plant or plant seed under conditions effective to control insects.

15 27. A method according to claim 26, wherein plants are treated during said applying.

28. A method according to claim 26, wherein plant seeds are treated during said applying, said method further comprising:

20 planting the seeds treated with the hypersensitive response elicitor in natural or artificial soil and

propagating plants from the seeds planted in the soil.

25 29. A method of imparting disease resistance to plants comprising: providing a transgenic plant or plant seed transformed with a DNA molecule according to claim 1 and

growing the transgenic plant or transgenic plants produced from the transgenic plant seeds under conditions effective to impart disease resistance.

30 30. A method according to claim 29, wherein a transgenic plant is provided.

31. A method according to claim 29, wherein a transgenic plant seed is provided.

32. A method of enhancing plant growth comprising:
providing a transgenic plant or plant seed transformed with a
DNA molecule according to claim 1 and
growing the transgenic plant or transgenic plants produced
5 from the transgenic plant seeds under conditions effective to enhance plant growth.

33. A method according to claim 32, wherein a transgenic plant is
provided.

10 34. A method according to claim 32, wherein a transgenic plant
seed is provided.

35. A method of insect control for plants comprising:
providing a transgenic plant or plant seed transformed with a
15 DNA molecule according to claim 1 and
growing the transgenic plant or transgenic plants produced
from the transgenic plant seeds under conditions effective to control insects.

20 36. A method according to claim 35, wherein a transgenic plant is
provided.

37. A method according to claim 35, wherein a transgenic plant
seed is provided.

25 38. A composition comprising:
a protein or polypeptide according to claim 17 and
a carrier.

39. A composition according to claim 38 further comprising an
30 additive selected from the group consisting of fertilizer, insecticide, fungicide,
nematacide, and mixtures thereof.

40. An antibody or binding portion thereof which recognizes a protein
or polypeptide according to claim 17.

41. An antibody or binding portion thereof according to claim 40, wherein the antibody is a monoclonal antibody.

42. An antibody or binding portion thereof according to claim 40, 5 wherein the antibody is a polyclonal antibody.

43. A method to alter the disease or hypersensitive response in a plant comprising:

providing the plant with an antibody or binding portion thereof 10 according to claim 40 and

causing the antibody or binding portion thereof to bind to a hypersensitive response elicitor protein or polypeptide under conditions effective to alter disease or hypersensitive response.